Chapter 15. Mitigation Monitoring Program

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Mitigation measures are a wide range of conditions and controls placed on a project to reduce its impacts on the environment. CEQA requires the use of mitigation measures to reduce the magnitude of impacts.

When an agency approves a project and adopts mitigation measures for potentially significant impacts disclosed by an EIR, the project proponent is required by California state law (Pub. Res. Code Section 21081.6) to establish a monitoring and reporting program to ensure that the mitigation measures are implemented. This Mitigation Monitoring Program will be considered for adoption by the SWRCB at the time the EIR is adopted.

The Mitigation Monitoring Program identifies mitigation measures reduce impacts to a less-than-significant level for the proposed project. For each mitigation measure, Table 15-1 identifies the monitoring and enforcement action, timing for implementing the measure, the entity responsible for implementing the measure, and the entity responsible for monitoring and enforcing implementation.

Table 15-1.
Mitigation Monitoring Program

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
Land Productivity				
4-1: Provide Soil- and Site-Screening Information with the Pre-Application Report. The GO Pre-Application Report should be revised to require that WDR applicants provide sufficient soil and site information such that RWQCB staff can determine whether soils would be degraded and/or land productivity would be reduced as a result of biosolids application. In particular, providing the information is intended to ensure that 1) essential soil nutrients other than nitrogen are applied so that significant nutrient imbalances do not occur, 2) metals-related phytotoxicity does not occur, 3) metal- related forage toxicity or mineral deficiencies and other trace metals related problems do not occur on hay lands and pasture lands, 4) increases in salinity do not occur to the point that the yields of the crop(s) typically grown at the site is appreciably reduced, and 5) appreciable accelerated soil erosion does not occur.	The GO will be revised to include the development and use of a screening tool to identify sites where management of soil fertility, heavy metals, phytotoxicity and nutrient and heavy metals bioavilability and mobility may become a problem if biosolids are applied	Before adoption of GO	SWRCB	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
4-1. Continued				
The Pre-Application Report already requires sufficient information with which effects of potential nutrient imbalances, metals phytotoxicity, and excessive salinity can be analyzed. This information should be used by certified soil scientist, civil engineer, agricultural engineer or a certified agronomist to evaluate the above potential effects on land productivity. The soil scientist, civil engineer, agricultural engineer and/or agronomist should make recommendations in a letter report to accompany the Pre-Application report regarding the proper rate of biosolids applications, any soil management (e.g., supplemental fertilizers and pH adjustment), appropriate crop, and grazing practice recommendations, considering the nature of the application site soils and biosolids characterization data, and the need to preserve short-term and long-term land productivity. GO Pre-Application Report also should be amended to include the erosion hazard (derived from USDA soil survey reports[1])				

[1] Where a soils survey report is not available for a proposed application site, the applicant should have a qualified soil scientist determine the erosion hazard (using NRCS guidelines), unless the slope of the site is 3% or less. Sites with slopes of 3% or less will be considered to have a slight erosion hazard.

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
4-1. Continued				
of the proposed application site. As is currently done for the recognition of potential hydric (wetland) soils under Section 404 of the Clean Water Act, the soil screening tool could be developed based on existing U.S. Natural Resources Conservation Service (NRCS) soil survey information and a list of possible problem soil-series types. Alternatively, the screening criteria could be based on Soil Taxonomy, using, for example, the taxonomic Great Group and family-differentiating criteria such as particle size, reaction class, and mineralogy classes (e.g., Psamments or Aquents). Additionally, the Limitation to Land Application table hereafter should be added to the GO Pre-Application Report. Applicants or qualified soil scientists or agronomists should use the table to further determine whether soils could be degraded or land productivity reduced.				

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
4-1. Continued				

Limitations to Land Application

Parameter	Slight	Moderate	Severe
Cation exchange capacity[a] (average milliequivalents per 100 g, 0-20 inches depth	>15	10-15	<10
pH[b] (average 0-20 inches depth)	>6.5	5.0 to 6.5	<5.0
Erosion hazard rating[c]	None to slight	Moderate	High to severe

[a] Cation exchange capacity limits based on professional judgment.

[b] pH limits based on U.S. Department of Agriculture (1993).

[c] Erosion hazard limits based on professional judgment.

Samplings of biosolids and soils should follow EPA/DHS procedures and protocols specified in the National Sewage Sludge Survey (U.S. EPA 1988).

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
4-1. Continued Provided that the applicant, a soil scientist, civil engineer, agricultural engineer or agronomist has provided written confirmation to the RWQCB that soils would not be degraded and/or land productivity would not be reduced as a result of nutrient imbalances, metals-related phytotoxicity, or adverse salinity effects, biosolids may be applied on any site with a "slight" limitation as defined in the table. At sites with a "moderate" limitation, biosolids may be applied only where the crop is not known to be particularly sensitive to metals and nutrient imbalances or is not known to be bioaccumulative of heavy metals. Sites with a "severe" limitation are excluded from eligibility under the GO and a site-specific waste discharge investigation and planning study should be conducted by a qualified soil scientist or agronomist to provide, in writing to the RWQCB, written confirmation that biosolids application would not cause soil degradation and would not reduce crop yield. The GO and the Pre-Application Report also should be amended to specify an absolute upper slope limit of 20% at sites in which the biosolids would not be immediately covered by sod or a sufficient mulch cover to control erosion.				

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
4-2: Extend Grazing Restriction Period to Allow for SOC Biodegradation. For grazing sites where biosolids applications are proposed, the GO should be revised to require that grazing of animals be deferred for at least 90 days after land application. The GO should also be revised to require that grazing of animals be deferred for at least 60 days after application of biosolids in areas with average daily (daytime) air temperatures exceeding 50ºF. These measures will promote maximum biodegradation of SOCs and pathogens before grazing animals are exposed to the soil. Refer also to Mitigation Measure 4-1, which requires comprehensive testing and analysis of soils and biosolids by qualified professionals.	The GO will be revised to extend the grazing restriction period to allow for SOC biodegradation.	Before adoption of GO	SWRCB	RWQCB
4-3: Track and Identify Biosolids Application Sites. A program to identify and track applications of biosolids on agricultural lands should be established to mitigate the potential perception by produce buyers and consumers that crops have been contaminated or damaged by biosolids applications. The program should allow for public access to information.. The program should also identify previous biosolids incorporation sites and add them to the tracking system.	A program to track and identify biosolids application sites will be established	Following adoption of GO	SWRCB	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
	Public Health			
5-1: Review Manual of Good Practices. Although no significant public health risk is expected from direct human contact with biosolids, it is recommended that all individuals or agencies receiving land application permits under the GO review a manual of good practices that addresses measures to protect human health. The California Water Environment Association Manual of Good Practice—Agricultural Land Application of Biosolids is an example of such a manual (California Water Environment Association 1998).	Manual of Good Practices will be reviewed	Before land application	Discharger	SWRCB
5-2: Extend Grazing Restriction Period to Allow for Pathogen Reduction. For grazing sites where application of biosolids is proposed, the GO should be revised to require that grazing of animals be deferred for at least 90 days after application. The GO should also require that grazing of animals be deferred for at least 60 days after application of biosolids in areas with average daily (daytime) air temperatures exceeding 50ºF. These measures will promote maximum degradation of pathogens (and SOCs) before grazing animals are exposed to the soil. See also Mitigation Measure 4-2.	The GO should be revised to state that the grazing of animals be deferred for at least 90 days following application and include grazing restrictions based on daily temperatures	Before adoption of the GO	SWRCB	RWQCB
5-3: Implement Good Management Practices. As part of good management practices, it is recommended that workers who are loading or working near sites where Class B biosolids are mixed or loaded or are applied by surface spreading wear respirators or masks to protect against inhalation of aerosols or fine particles derived from the biosolids being handled.	It is recommended that workers who are loading or are working near Class B biosolids wear masks or respirators	During land application operations	Applier	Applier

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
Land Use and Aesthetics				
5-4: POTW Operators Maintain Awareness of Potential Radioactive Materials in the Wastestream. As part of its GO, the SWQCB shall require the operators of POTW that produce biosolids that are to be applied to land to follow the recommendations contained in the ISCORS Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Radioactive Materials in Sewage Sludge and Ash at Publicly Owned Treatment Works for screening, identification, and consultation.	The GO will be modified to require operators to follow ISCORS recommendations	Before adoption of GO	SWRCB	SWRCB
6-1: Require injection of biosolids in areas defined as having a high potential for public exposure for Class B biosolids. The GO will be modified to state that no application of Class B biosolids shall be permitted within an area defined in the GO as having a high potential for public exposure unless the biosolids are injected into the soil.	Class B biosolids will be injected at the application site if they are applied in areas defined as having a high potential for public exposure	During land application	Discharger	RWQCB
6-2: Require the Maintenance of Biosolids Transport Trucks after Biosolids Are Loaded in the Trucks. The GO will be modified to stipulate that dischargers ensure that any biosolids adhering to the outside of biosolids transport trucks and tires be removed before trucks leave the dischargers' sites. Implementation of this mitigation measure will prevent biosolids from being spilled in roadways.	The GO will be modified to require the maintenance of biosolids transport trucks	Before adoption of GO	SWRCB	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
Biological Resources				
7-1: Conduct a Site Assessment on Natural Terrestrial Habitat and Fallow Lands for Special-Status Plant and Wildlife Species. The NOI should be modified to include a section for the applicant to indicate whether the site where biosolids would be applied has been fallow for more than 1 year. RWQCB staff will evaluate each project to determine if the biosolids would be applied to natural terrestrial habitats or any lands that have been fallow for more than 1 year and that have not been continually disked. If RWQCB staff determines that natural terrestrial habitats or lands that have been fallow for more than 1 year are present on the project site, a site assessment must be conducted to determine whether there is potential for special-status species to occur and whether or not they could be affected by the application of biosolids; this report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. If there are no special-status species present, RWQCB may continue with the project evaluation. If special-status species could be affected, the project would not be authorized under the GO unless the applicant submits a plan to mitigate for any significant impacts on special-status species, obtains the appropriate permits, and agrees to implement the mitigation.	The GO will be modified to include biological information in the NOI and site assessments will be conducted on natural terrestrial habitat and follow lands for special-status plant and wildlife species	Before issuance of Notice of Applicability	SWRCB Discharger	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
7-2: Conduct a Site Assessment on Natural Terrestrial Habitats for Biologically Unique or Sensitive Natural Communities. The NOI should be modified to include a section for the applicant to indicate whether the site where biosolids will be applied is an existing agricultural operation or whether it could contain biologically unique or sensitive natural communities. RWQCB staff will evaluate each project to determine whether the biosolids would be applied to natural terrestrial habitats. If RWQCB staff determines that natural terrestrial habitats are present on the project site, a site assessment must be conducted to determine whether biologically unique or sensitive natural communities occur and whether they could be disturbed by the application of biosolids; this report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. If there are no biologically unique or sensitive natural communities present, RWQCB may continue with the project evaluation. If biologically unique or sensitive natural communities are present and more than 10% or 10 acres would be disturbed, whichever is less, the project would not be authorized under the GO unless the applicant submits a plan to mitigate for any significant impacts on biologically unique or sensitive natural communities and agrees to implement the mitigation.	The GO will be modified to include biological information on the NOI and a site assessment on natural terrestrial habitats for biologically unique or sensitive natural communities will be conducted	Before issuance of Notice of Applicability	SWRCB Discharger	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
	Fish			
8-1: Increase Setback from Enclosed Water Bodies If Pupfish Are Present. Proposed land applications in the habitat range of the pupfish should be reviewed for their proximity to enclosed water bodies that could be occupied by pupfish. If such water bodies are near the land application areas, setbacks of 500 feet should be required. There are several species of pupfish in southern California. Their current occupied habitat is confined to several small springs, Salt Creek and the Amargosa River in southern Inyo and northern San Bernardino counties in the vicinity of Death Valley National Monument, and San Felipe Creek and the Salton Sea in Imperial County. Exact locations of habitat can be found in Moyle et al. 1989.	NOI will be reviewed to determine if proposed land applications are within the habitat range of the pupfish. If pupfish are present, 500-foot setbacks from water bodies will be established	Before issuance of Notice of Applicability and during land application	RWQCB	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
		Noise		
11-1: Avoid the Use of Haul Routes near Residential Land Uses. The project applicant and or transporter will avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the project applicant and or transporter will limit project-related truck traffic to daylight hours.	Haul routes near residential land uses will be avoided to the extent possible	During biosolids transport	Discharger	RWQCB
		Cultural Resources		
12-1: Conduct a Cultural Resources Investigation. A cultural resources investigation should be conducted before disturbance is permitted on land that has not been disturbed previously. The cultural resources investigation should include a records search for previously identified cultural resources and previously conducted cultural resources investigations of the project parcel and vicinity. This records search should include, at a minimum, contacting the appropriate information center of the California Historical Resources Information System, operated under the auspices of the California Office of Historic Preservation. In coordination with the information center or a qualified archaeologist, a determination can be made regarding whether previously identified cultural resources would be affected by the proposed project and if previously conducted investigations were performed to satisfy the requirements of CEQA. If not, a cultural resources survey may need to be conducted. The purpose of this investigation would be to identify resources before they are affected by a proposed project and avoid the impact. If the impact is unavoidable, mitigation should be determined on a case-by-case basis.	A cultural resources investigation will be conducted on undisturbed lands	Before issuance of Notice of Applicability	Discharger	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
12-2: Comply with State Laws regarding Disposition of Native American Burials, If Such Remains Are Found. If human remains of Native American origin are discovered during project activities, it is necessary to comply with state laws relating to the disposition of Native American burials, which are under the jurisdiction of the Native American Heritage Commission (Pub. Res. Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains will stop until: **g** the county coroner has been informed of the discovery and has determined that no investigation of the cause of death is required; and **g** if the remains are of Native American origin, – the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of the human remains and any associated grave goods with appropriate dignity, as provided in Public Resources Code Section 5097.98, or – the Native American Heritage Commission is unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.	State laws regarding disposition of Native American burials will be complied with	During land application	Discharger	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
12-2. Continued				
According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100) and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission.				
Cumulative Impacts				
13-1: Minimize Contribution to Groundwater Nitrate Contamination from Land Application of Biosolids Conducted under the GO. As a condition for the review of each individual NOI submitted for a proposed biosolids application project under the GO, the RWQCB engineer responsible for issuing the NOA would: **g** evaluate whether the proposed discharge would occur within an area designated as having existing nitrate contamination problems and **g** evaluate whether the proposed discharge would pose an imminent threat of contributing to or causing exceedances of water quality standards for nitrate.	RWQCB to review application and discharger to modify discharge activities or provide additional information on potential violation of water quality standards	Before issuance of NOA	RWQCB Discharger	RWQCB

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
13-1. Continued				
If the responsible engineer finds that either condition exists, the RWQCB would minimize the potential water quality impacts of the project by requiring the applicant to modify the proposed discharge activities or provide additional information to verify that the proposed discharge would not cause or contribute to violations of water quality standards. Verification that the proposed project would not cause or contribute to water quality degradation would require that sufficient information be submitted by a qualified civil engineer, agricultural engineer, or other professional hydrogeologist or water quality specialist such that the RWQCB engineer could make a finding that the proposed discharge would be in compliance with provisions of the GO. If the RWQCB finds that modifications to the proposed discharge are necessary for compliance with provisions of the GO, such modifications would consider, but would not be limited to, the following:				
g requirements for the discharger to use the services of a certified agronomist, crop advisor, or agricultural engineer to develop additional management practices related to: 1) determining the agronomic rate for biosolids application projects that includes all sources of nitrogen applied to the application site; 2) developing overall farm water, cropping, and fertility management practices; and 3) evaluating the potential for nitrate leaching or impairment of offsite groundwater use;				

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
13-1. Continued				
g requirements of the discharger to provide additional groundwater monitoring in areas where groundwater is found at depths greater than 25 feet or there exist other identified local hydrogeologic conditions that could make the groundwater susceptible to contamination;				
g requirements of the discharger to identify whether the proposed biosolids application site is within an area where Drinking Water Source Water Assessment and Protection (DWSWAP) Program setback requirements are implemented for municipal and domestic wells; and				
g requirements of the discharger to consider the unique local site and hydrogeologic conditions in the design of the project and/or other groundwater quality management or regulatory programs that are currently active in the area.				

Mitigation Measures	Monitoring and Enforcement Action	Timing of Action	Implementation	Monitoring and Enforcement Responsibility
13-2: Reduce Sources of Nitrate Contamination. The SWRCB would continue to identify causes of cumulative nitrate loading in nitrate sensitive groundwater areas and develop an effective strategy for reducing those sources. An effective strategy may include, but would not be limited to, the following: **g** Each RWQCB should implement existing groundwater pollution protection permit programs and policies to prevent or reduce nitrate contamination of groundwater. Such a program may include evaluating increased enforcement procedure, or modifying the permitting programs for other agricultural activities (e.g., confined animal feeding operations, dairies, poultry farms), industrial and municipal NPDES-permitted discharges of wastes and reclaimed water to land, and NPDES storm water management regulations. **g** Other local, state, and federal permitting authorities should evaluate, integrate, increase enforcement of, or modify their existing policies and procedures to reduce the cumulative contribution of nitrates to groundwater. Examples of other regulatory programs that should be evaluated and considered in areas that would have biosolids application include groundwater management programs, residential onsite septic tank system approval, municipal landfill management plans, agricultural cooperative extension programs, and forestry management programs.	Sources of nitrate contamination will be controlled	Ongoing	RWQCB	SWRCB